

### Claims:

1. In a communications system utilizing a digital cross-connect system (DCS) element management system (EMS) for managing DCS network elements and a SONET EMS for managing SONET add/drop multiplexer (ADM) network elements, apparatus comprising:
- a SONET ring network including a plurality of ADMs, said SONET ring network being managed by said SONET EMS;
- a plurality of DCS elements, each of said plurality of DCS elements being managed by said DCS EMS, at least one of said plurality of DCS elements including an ADM that is logically coupled to said SONET network and managed by said SONET EMS, said ADM being coupled to said at least one DCS by a digital link.
2. The apparatus of claim 1, wherein said DCS EMS and said SONET EMS are coupled to respective DCS and SONET network elements by a data communication network (DCN).
3. The apparatus of claim 1, wherein said digital link comprises one of an STS-1 and STS-3 digital link.
4. Apparatus comprising:
- a hybrid digital cross-connect system (DCS), said hybrid DCS comprising at least one add-drop multiplexer (ADM) communicating with a DCS port via a digital link;
- a SONET ring network comprising a plurality of ADMs including said at least one ADM within said hybrid DCS;
- said SONET ring network being managed as a ring by a SONET element management system (EMS); and
- said DCS being managed by a DCS EMS.

8. A hybrid digital cross-connect system (DCS)/SONET integrated SONET  
5 ring structure, comprising:  
a plurality of add-drop multiplexers (ADMs) arranged according to a ring  
topology and managed as a ring by a SONET element management system  
(EMS), wherein at least one of said ADMs forming said SONET ring is included  
within an input/output module of a hybrid DCS, said input/output modules,  
10 each of said input/output module further comprising a DCS port operatively  
coupled to said ADM via a digital link.

15 ~~8. Apparatus, comprising:~~  
~~a SONET element management system (EMS), said SONET EMS being~~  
~~adapted to manage, as a network ring structure, a SONET ring formed using at~~  
~~least one add-drop multiplexer (ADM) included within a hybrid digital cross-~~  
20 ~~connect system (DCS).~~

25 10. The apparatus of claim 15, wherein said digital link comprises one of an STS-1 and STS-3 digital link.

11 In a communications system comprising a digital cross-connect system (DCS) including a SONET add/drop multiplexer (ADM), a method of utilizing said ADM as a network element within a SONET ring such that said SONET

ring may be managed as a homogeneous SONET ring structure by a SONET element management system, said method comprising the steps of:

characterizing said DCS including said ADM as comprising a logical DCS network element and a logical ADM network element, said logical DCS network element communicating with said logical ADM network element via a digital link; and

utilizing said logical ADM network element within said SONET ring being managed as said homogeneous SONET ring structure by said SONET element management system.

12. The method of claim 11, wherein said digital link comprises one of an STS-1 and STS-3 digital link.

~~13~~ A method for adapting a communications network comprising the steps  
of:

- identifying each network element within a network to be managed;
- determining if hybrid DCS/SONET network structures are present in the network;

decoupling, from said determined DCS/SONET network structures, those add-drop multiplexers (ADMs) used to form hybrid ring networks; and managing said hybrid ring networks as network ring structures using a SONET element management system (EMS).

14. The method of claim 13, further comprising the step of:  
inserting an additional ADM between a hybrid DCS/SONET structure  
and a hybrid ring utilizing an ADM network element within said hybrid  
DCS/SONET structure.

15. The method of claim 13, wherein said DCS network elements and ADM network elements are decoupled via a digital link.

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16. The method of claim 15 wherein said digital link comprises one of an STS-1 and STS-3 digital link.

~~17. A method for adapting a communications network comprising the steps of:~~

identifying each network element within a network to be managed;

identifying homogeneous network structures within the network to be managed;

identifying non-homogeneous network structures within the network to

10 be managed;

determining if hybrid DCS/SONET network structures are present in the network to be managed;

decoupling, from said determined DCS/SONET network structures, those add-drop multiplexers (ADMs) used to form hybrid ring networks;

15 managing, using a DCS element manager, DCS network elements within  
said network to be managed; and

managing, using a SONET element manager, ADMs within said network to be managed, wherein ADMs forming ring structures being managed as homogeneous network ring structures.